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ENVIRONMENTAL SCOPING STATEMENT:

Scoping Statement

for

Rehabilitation of Tskhaltubo - Senaki Transmission Lines and Reconstruction of Substations Menii & Tskhaltubo

Implemented under:
Power Gas Infrastructure Project
DCN: 2010-GEO-004

This report was prepared for the United States Agency for International Development

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DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government

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TABLE OF CONTENTS

List of Acronyms

GSE	Georgian State Electrosystems
PGIP	Power and Gas Infrastructure Project
FIZ	Free Industrial Zone
USAID	The United States Agency of International Development
EA	Environmental Assessment
EMP	Environmental Management Plan
E&S	Environmental and Social
GIS	Geographic Information System
TL	Transmission line

1. BACKGROUND AND PURPOSE

Although much progress has been made, Georgia's infrastructure has not fully recovered from the devastation caused by the ravages of civil war in 1993, lack of regular maintenance and scant investment in physical infrastructure. New vulnerabilities have surfaced after the 2008 conflict with Russia, especially with regard to energy production and transit. The task of stabilizing and rebuilding Georgia is immense and requires the support of the donor community, as notably highlighted in the post-conflict World Bank Joint Needs Assessment.

In recognition of the urgent need for reconstruction /rehabilitation of the Transition Line Senaki1, 2 and two substations, in 2010, the Government of Georgia asked the United States Government, to provide financial support for the rehabilitation. Shortly thereafter, an agreement (HGA) was signed in February 2010 between the Government of Georgia and US Government, under which funds were allocated to finance the rehabilitation/construction works.

The activities under Georgia Power Gas Infrastructure Project (PGIP) will support USAID's objective of promoting energy security through greater access to electricity and natural gas supplies for households in Western Georgia, promote the development of the Poti Free Industrial Zone (FIZ) on the Black Sea coast, and secure power exports through reliability related infrastructure improvements.

The purpose of the Georgia Power and Gas Infrastructure Project ('PGIP' or 'Project') is to provide resident professional engineering and other technical services to support power and gas transmission Improvements being undertaken by United States Agency for International Development (USAID) on behalf of the Government of Georgia ('GOG').

Activities performed under the PGIP will complement and reinforce, project management and engineering expertise of USAID/Caucasus. USAID will be undertaking work from 2010 to 2013 in the energy sector in collaboration with the Georgia State Electrosystem ('GSE') to upgrade, replace, and install critical selected power transmission infrastructure. This company is state-owned entity in charge and dispatches electricity throughout the country.

Under PGIP "TetraTech" was hired by USAID for project infrastructure oversight. TetraTech will provide resident professional engineering and technical contractor services in support of the gas and electricity infrastructure project. TetraTech will oversee all aspects of the design and construction of electricity transmission line.

TetraTech, on behalf of USAID, is responsible for development of the Environmental Assessment and for managing the consultancy until the output is delivered to USAID. It is anticipated that USAID will then review the results of the design in conjunction with the environmental study, and if the conclusions are favorable, it will transfer this documentation to Georgian Government for rehabilitation/reconstruction of the Transmission Line (TL) and Tskhaltubo and Menji Substations.

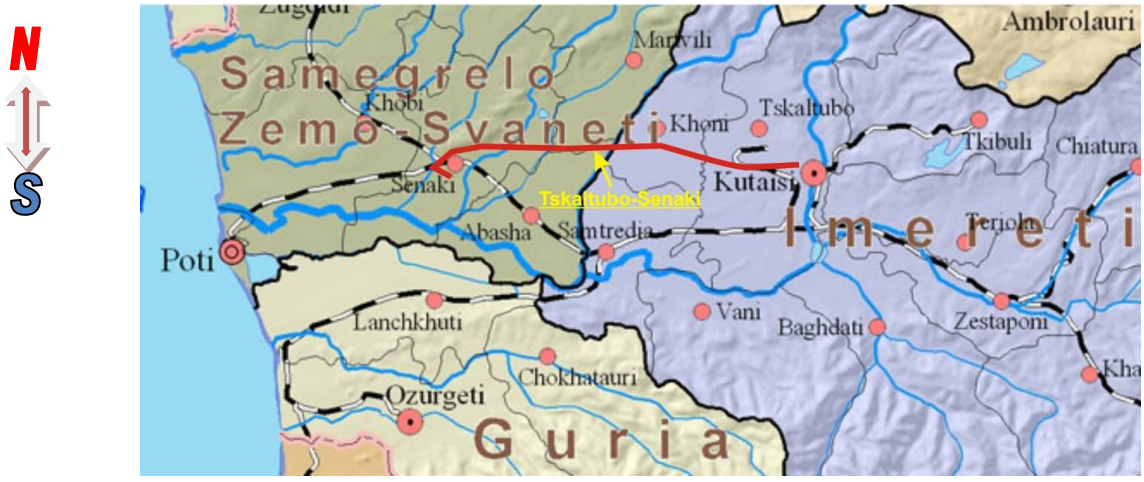
The existing Senaki electricity transmission line (see Figure below) was constructed in 1991 and was under operation; however, during the Civil War in 1991 – 1993 the system was totally robbed and destroyed. Therefore there is no system in place and an immediate and comprehensive rehabilitation reconstruction is in order to bring the infrastructure back to an acceptable level of technical integrity.

Senaki power transmission line which in total is 58.1 km connects the Menji 220 kV substation with the Tskaltubo 220kV substation. Site inspection demonstrates that there is little usable existing infrastructure. Most of the substation terminal equipment is damaged or has been stolen, and one of the transformers in the Tskaltubo substation will need to be replaced. The purpose of the project is to:

- Reconstruct the double circuit Senaki 2 220kV high voltage power transmission line that will connect the Menji 220 kV substation with the Tskaltubo 220 kV substation. The overall length of the transmission line is estimated to be 58.1 km.

- Install of 220kV terminal bays in the Tskaltubo and Menji substations; including requisite breakers, disconnects transformers, surge arrestors, control/protection equipment, alarm systems, buildings, etc. (see. photo 1)

The construction/rehabilitation of the transmission line and two substations will be beneficial for the west Georgia: (i) Population will have secure, safe and reliable supply of electricity to the west Georgia; (ii) It will assist in supply of natural gas to Poti Free Industrial Zone (FIZ), (iii) It will assist economical and tourism development of west Georgia (Batumi, Anaklia and Mestia) (iv) It will improve GSE's capacity to sustain and further develop the operational and financial performance of the System.



Map 1-1 - General location of the Tskhaltubo - Senaki Transmission Line System

Photo 1 abandoned tower

Objectives of the Scoping and Environmental Assessment (EA) Report

As a condition of participation in the reconstruction/rehabilitation works, USAID requires works to conform to Environmental Assessment procedures used by the USAID and set in USAID regulation 22CFR216. Following these procedures, the Initial Environmental Examination (IEE) for Power and Gas Infrastructure Project (PGIP) was drafted and approved by BEO 03.10.2011, DCN: 2010-GEO-004. Pursuant to 22CFR216 and the Positive Determination, an Environmental Assessment (EA) has to be prepared to ensure environmental consequences and their significance are known and clearly identified prior to the approval of the final design and start of construction.

In accordance of the 22CFR 216.3 (a) (4), after a Positive Threshold Decision has been made that an Environmental Assessment is required, the initiator of the action shall commence the process of identifying the significant issues related to the proposed action and of determining the scope of the issues to be incorporated in the Environmental Assessment.

As such, this Scoping Statement is being prepared to determine the extent of and the approach to an EA, in accordance with 22CFR 216.3 (a)(4), which states that the scoping process should result in a written statement which shall include the following:

(a) A determination of the scope and significance of issues to be analyzed in the Environmental Assessment, including direct and indirect effects of the project on the environment.

(b) Identification and elimination from detailed study of the issues that are not significant or have been covered by earlier environmental review, or approved design considerations, narrowing the

discussion of these issues to a brief presentation of why they will not have a significant effect on the environment.

(c) A description of:
(1) timing of the preparation of environmental analyses, including phasing (if/where appropriate); (2) variations required in the format of the Environmental Assessment; and (3) the tentative planning and decision-making schedule; and

(d) A description of how the analysis will be conducted and the disciplines that will participate in the analysis (content of further study);

The Georgian environmental legislation does not consider preparation of the Scoping Statement as a part of EIA process, and thus does not contain any specific requirements for the preparation of a Scoping Statement. However, this document reflects certain national legal requirements for the process of preparation of the Environmental Assessment. The overview of the Georgian environmental legislation is briefly presented in the document and will be discussed in more details within the EA.

1.1 Project Description

1.1.1 Project Purpose

The project involves rehabilitation/reconstruction of the Tskhaltubo-Senaki 220kV transmission lines for a total of 58.1 km. The line connects the existing Menji and Tskhaltubo substation. The line was damaged in early 1991 during the civil war in Georgia and was totally robbed in 1994.

Government of Georgia (GoG) is undertaking strategic interventions in energy sector of Georgia aimed at enhancing the energy security of the country. Construction of Tsakhaltubo-Senaki transmission lines and two substations requires an immediate reconstruction to secure the safe and reliable supply of electricity to Western Georgia (i) to provide affordable energy source to households and reduce poverty, (ii) to facilitate industrial development in urban areas of West Georgia, (iii) to support agricultural development and small enterprises, (iv) to strengthen Georgia's potential for transiting energy resources to EU and world markets, and (v) to provide Poti Free Industrial Zone with permanent electricity supplies.

The project bears strategic importance and is aimed at raising the energy and political security of the country and resolving social and ecological problems, in particular:

The upgraded electricity system will assist Georgian State Electrosystems to participate in new transit projects that will supply electricity to FIZ and may be to EU in future. The upgraded system should be considered as one of the potential opportunities for diversification and raising the energy security of Georgia.

In addition to the Tskhaltubo-Senaki line rehabilitation/construction there are other projects on going such as Zestaphoni and Akhaltsikhe 500kV line and proposed line from Enguri to Khorga which will end up with construction of Khorga substation.

Summarizing infrastructure and economical developments of Georgia, the rehabilitation/construction of Tskhaltubo-Senaki 58km transmission line and two substations will:

- Provide electricity to West Georgia;
- Assist in development of the Black Sea coastline resorts-recreational area (Batumi, Kobuleti and newly declared Zugdidi-Anaklia Free Touristic Zone);
- Assist in the development of the Poti FIZ (Free Industrial Zone);
- Ensure safe and reliable supply of the electricity and for raising the energy security level of Georgia; and
- May lead to supplying safe and reliable electricity to EU.

1.1.2 Project Need

Inspections of the Tskhaltubo-Senaki 220kV transmission line and two substations have emphasized that there are only a handful of towers remaining; therefore, to provide the necessary power, the complete line needs to be rebuilt. The new line is proposed to be constructed on the same central lines where the original line was built and the towers must be rebuilt in the exact same location for right of way purposes. Very few towers are currently in place, however there are foundations in place, which assists in determining of Right of Way (RoW) and in part, justifies the project route. The bays in the substations where the lines had been terminated must be also rebuilt and new protection and control panels installed.

All the above and in addition robbery of the entire line made it impossible to operate this transmission line and to ensure reliable supply of electricity to West Georgia and Poti Free Industrial Zone.

Based on economic development trends within the country and touristic developments in Batumi, Anaklia and Svaneti requires increased amount of energy resources. Therefore, the line has to be constructed to satisfy demand requirements. It became obvious that the limited capacity will not address growing demand of the country and the strategic goals of the EU energy initiatives (to get electricity to Europe from Georgia via Turkey).

Technical Overview

At this stage, Tetra Tech in coordination with Power and Basiani is in the process of developing design documentation. Technical overview, which is presented in this scoping statement, is based on previous report produced by Basiani in 2006-2008. For this Scoping Statement, the authors also walked through the proposed line with Basiani and at this stage summarized general design criteria, which may be modified, based on analyses during development of EA document.

The total length of Tskhaltubo- Senaki 1-2 power transmission line is 58 km and runs through four regions of Georgia (Senaki, Abasha, Khoni and Tskhaltubo). The proposed route of the transmission line is mainly located in the flat area; however, the last (end) section (near the city of Senaki) of the TL is under the complex topographic conditions running through the mountains adjustment to City Senaki.

The line crosses the main railway (Senaki-Zugdidi and Kutaisi-Tskhaltubo) in two locations; riverbeds – in eight locations (Tsivi – in two locations, Tekhuri, Abasha, Noghela, Tskhenistskali, Gubistskali and Tskaltubostskali); 110 kV PTL – in two locations; and 35 kV PTL – in three locations. Moreover, transmission line crosses low voltage (10kV and 0,4 kV) and communication lines. Tkhslatubo- Senaki transmission line also crosses highways in the following locations Senaki-Chkhorotsku, Senaki-Martvili, Abasha-Martvili, Samtredia-Khoni and Kutaisi-Tskaltubo.

The line was constructed in 1991 and has been out of operation since 1994 and it almost completely dismantled (robbed), with hardly any standard steel towers left.

At present, the towers near the substations (final and initial tower at Tskhaltubo-220 substation and two towers including final one at Menji-220 substation) are still available. Remaining towers along the line include two angle towers (No.7 and No.8) near Kutaisi-Tskaltubo railway crossing, two suspension towers (No.70 and No.73) on the territory of Ghaniri psychiatric hospital and along Samtredia-Khoni motorway and two angle towers (No.169 and No.193) on the territory of Senaki.

Lower sections of the existing towers are mainly robbed, different-type tower members' are removed and damaged. Protective layer of paint is removed from the existing towers, with metal corrosion process being in the progress.

Destruction of most of the towers has been almost complete. After dismantling the standard steel towers, removal of fittings from reinforced concrete assembly foundations continued. Steel tops and anchor bolts are removed or cut off from the angle tower foundations. Fixing bolts are cut off the foundations of suspension towers. In most cases, not only fixing bolts but also reinforcement of concrete elements is removed from the reinforced concrete structures.

There are trenches found around most of the angle tower foundations. These trenches were intended for dismantling reinforced concrete crossbars. These items have not been completely dismantled from some foundations.

Crossing towers (designed for grove area) are also damaged. Tower fixing bolts are cut off or removed here as well. Foundation grill concrete erosion is noticed. Rods on the reinforcement of concrete elements are exposed.

Substations:

Existing oil breakers in the line bay for substation Menji-220 are not fully equipped, preventive maintenance works are needed for disconnections and support insulators. The line bay for substation Tskaltubo-220 SS also needs to be provided with necessary equipment, with inspection and preventive maintenance works to be carried out for existing elements.

Preliminary Design Issues

The project aims to integrate the power lines, to the extent possible, into the surrounding environment. By minimizing visibility of the power lines, the project will also minimize aesthetic impacts.

The Scoping Team had discussions with Power engineers and walked the route on May 8, 2011 prior to finalizing of the scoping statement. As we summarized design, analysis identifies the specific characteristics in order to integrate the power lines into the surrounding environment (such as type of tower or pole to be used for the different situations, etc.).

For each section of the line, the impact of all the potential social and natural environment issues (land use, flora, fauna, electromagnetic field phenomena, visual impact, etc.) both during the design construction and operation phases are analyzed and classified by order of importance. For specific cases where critical areas are identified, slight route modifications or specific mitigation solutions might be required although the intention is to remain in the existing RoW.

1.2 22 CFR 216 Background

Summary of 22 CFR 216 Requirements

USAID Environmental Policy and EA procedures are laid down in the USAID Environmental Regulation 22 CFR 216. The purpose of these guidelines is (i) to establish a process for the review of environmental and social impacts; (ii) to ensure that projects that are undertaken as part of programs, funded under USAID with eligible countries, are environmentally sound; (iii) are designed to operate in compliance with applicable regulatory requirements, and, (iv) as required by the legislation are not likely to cause a significant environmental, health or safety hazard.

With regard to the scoping, implementing entities are expected to prepare scoping document prior to development of EA document. The objectives of and information to be included in a scoping statement were described in Section 1 of this report.

Environmental Threshold Finding of Proposed Action

Initial Environmental Examination (IEE) for Power and Gas Infrastructure Project (PGIP) was drafted and approved by BEO 03.10.2011, DCN: 2010-GEO-004. Pursuant to the Positive Determination, an Environmental Assessment (EA) has to be prepared to ensure environmental consequences and their significance are known and clearly identified prior to the approval of the final design and start of construction. The implementer will prepare an environmental assessment (EA) per 22 CFR 216.6, to be approved by the BEO, to ensure environmental consequences and their significance are known and clearly identified prior to the approval of final design and start of construction. The existing corridor and other potential corridors shall be assessed to identify the most feasible final routing of the power transmission lines. Impacts to be assessed include potential conflicts with critical habitat, land tenure/right of way conflicts, land use, community concerns, historical sites, security, and operation maintenance, etc. Prior to conducting the EA, a scoping statements for Components 1 and 2 will be prepared per 22 CFR 216.3(4) and approved by the BEO.

1.3 Public Scoping Process and Findings

The Tetra Tech and Gergili Scoping Team was made up of the following members with the following expertise: Sophie Berishvili Tetratech - Environmental Advisor, Revaz Enukidze – Project Manager Gergili; Shalva Bosikashvili – Environmental Expert Gergili

Scoping meetings were held on May 22 and 23 in Askhaltubi, Khoni and Senaki. Minutes of the scoping meetings are included in Annex A.

There were no environmental issues brought up at the scoping meetings. The Scoping Team feels that they gave sufficient notice to communities and NGOs; they advertised the meetings widely and timely; they held meetings at convenient locations and at convenient times; they held meetings in appropriate local communities (communities adjacent to the project); provided sufficient information on the project; and they made an appeal to hear community concerns regarding potential impacts on the environment. However, the main concern of the communities was obtaining employment with the construction company, as can be seen in the minutes, and there were no comments or questions regarding the environment.

A health concern was raised regarding electromagnetic radiation. This concern will be analyzed in the EA.

Since communities and NGOs failed to bring up any environmental concerns, the Scoping Team identified the potential significant impacts to be analyzed in the EA.

2. SCOPE AND SIGNIFICANCE OF ISSUES TO BE ANALYZED IN THE ENVIRONMENTAL ASSESSMENT

2.1 Affected Environment

Tetra Tech team conducted initial baseline survey studies in May 2011. This incorporated field visits and desk studies. At the first stage, the information available on specific sectors has been collected from published sources including books, periodic publications, scientific journals etc. The collected information was analyzed for transmission line route.

The information on selected route was screened during the site visits conducted by different experts. The field reconnaissance data was also analyzed in conjunction with desk study outcomes.
The aim of conducted studies is to:

- Document the existing site conditions (affected environment);
- Identify and describe the significant issues;

Information about the affected environment is still being collected and more detailed and final information will be provided in the EA.

The main purpose of this chapter is to describe affected environment and social conditions in the area along the proposed Tskhaltubo – Senaki transmission line route, including substations Tskhaltubo and Menji.

The characteristics of physical, biological and social environment are presented in following sections:

- Geography and Topography
- Climate
- Geology, Geomorphology and Soils
- Hydrology & Hydrogeology
- Seismic Conditions
- Air and Water Quality
- Soils
- Flora
- Fauna
- Protected Areas
- Socio-Economic and Cultural Environment
- Protected Territories

2.1.1 Geography and Topography

TL and substation area is represented by typical lowland landscape; the lowland is practically flat, located in humid and warm air conditions; bordering with rivers, swamp and lake areas. The soils are mostly precipitated and flora is also characteristic to humid areas. To summarize, historically this area is known as a flat land, which is filled with river sediments; it has been formed during the Quaternary age, and has not changed since then. The alluvial material from southern parts of Great Caucasus and northern part of South Caucasus ridges transported by the rivers was used for formation of western side of the lowland. The area in total presents Kolkheti Lowland. 220 kV line route to be rehabilitated is located in the north part of Kolkheti lowland and runs through from the east to the west. Relief of the route location area is lowland, with the general flatness to the west direction.

The relief of the lowland can be divided in two types:

(1) The lowest part, which is adjacent to the seashore line between rivers Kodori and Supsa and continues to the west up to river Tskenistkali. This area is flat with maximum datum of 20-25m (ASML). The mentioned part of the lowland is covered by rivers within deep riverbeds. The seashore is built by sand and gravel accumulated as the seas shore dune. Those dunes are creating barrier for the rivers, forcing them to meander within the lowland, prior to finding exit towards sea.

(2) The periphery part of the land has different morphological structure; these areas are adjacent to the mountain outcrops, are hilly and created mostly by gravel transported by mountain rivers. The altitudes are changed from sea level.

2.1.2 Climatic Data and Weather Conditions

The climate of the region is humid, sea climate, sub-tropic, characterized by a warm winter and a hot summer. Meteorological factors of the region are well investigated, especially wind and glaze icing events having significant impact on power line elements.

In consideration of the climatic conditions, the line route is divided into three sections: Section I – from the angle No.1 up to angle No.32, Section II – from angle No.32 up to angle No.51 and Section III – from angle No.51 up to angle No.83.

The table below shows the characteristics of meteorological factors:

No.	Meteorological Factors	Units		
		Section I	Section II	Section III
1	Air temperature:			
	Maximum	+40º	+40º	+40º
	Minimum	-10º	-10º	-10º
	Annual average	+15º	+15º	+15º
	Icing periods	-5º	-5º	-5º
	The coldest five-day periods	-3º	-3º	-3º
2	Maximum wind velocity, m/sec.	45	43	41

3	Ice cover thickness, mm	20	20	20
4	Thunderstorm duration, annual average, hr	>70	>70	>70
5	Annual average precipitation, mm	1586	1793	1830
6	Maximum snow cover thickness, cm	80	70	60

At present, the air quality in the region is excellent (see below); there are neither functioning industrial companies that could cause air pollution by their emissions, nor any natural air pollutants in the region of 220 kV line route.

The meteorological factors listed above are taken into account when making mechanical calculations for tower and conductor and are used for the examination of actual loads on tower elements.

2.1.3 Geology, Geomorphology and Soils

Geology within the area of TL route is composed of the quaternary layers, in particular middle and upper quaternary sediments. The upper granular soil is the alluvium brought down by the rivers from the Caucasus, the lower soil is mostly covered by the Black Sea sediments, among which according to faunistic signs can be distinguished old Black Sea, new Euxinic, old Euxinic, Karangatian and Chaudian (Late Pleistocene) deposits/layers. Modern Quaternary alluvial sediments are observed upstream of river gorges where they form riverbeds and terraces. The soil-forming sediments are represented by alluviums, clay, sea sediments which are merged with lake clays and the peat accumulated in the swamps.

From a geomorphologic perspective, land is an accumulating plane with a high hydrographic net. The large rivers that cross it are fed by snow, rain, groundwater, and glacial melt and the small rivers are marsh types. Over a long period, land has been sinking due to tectonic movements, but the loss of land to the sea used to be compensated by deposition of sediments washed up along the coast by rivers. The fact of the stable geomorphologic development of the coastal zone of the plane is proved by the existence of the old coastal dune along the new coastal line.

From the early forties of the 20th century the natural morpho dynamic regime of development of the coastal zone between the mouths of the rivers Tskhenisktskali and Rioni has been changed considerably by human activities. In particular, the process of growth of the coastal land in the direction of the sea was started.

The Kolkheti plain in project area generally consists mainly of hydro-morphous and alluvial soils due to abundant rainfall and the relief of the plain. Generally soils consist of coarse sand and have high infiltration capacities. At number of places in the river vicinity, alluvial soils dominate which are in the initial stage of evolution. According to the scheme of dividing Georgia into soil-geographic zones, soils along the route alternatives are generally podzolic and swampy soils. FAO classification was used as a taxonomic unit of classification of the soil surface. Along the alternative routes, the following types of soils are mainly observed: subtropical clay podzols, silt bog, alluvial calcareous.

2.1.4 Geology and Hydrogeology

Existing archive documents, as well as the survey/study materials developed during the construction of different buildings in the region (civil-industrial, water conservation, transportation, etc.) were used for determination of engineering-geological conditions of the line. The shafts remained after dismantling the reinforced concrete elements of tower foundations served as a significant source of information.

Along the line route, friable quaternary deposits mainly represent geological cross-section, with the thickness often exceeding 10m.

Genetically, alluvial and delluvial deposits prevail.

Main rocks are exposed to air or covered by delluvial layers on the south slope of Egrisi mountain range.

Geological cross-section of the line route region is comprised of:

1 layer – soil-plant layer with shingle-pebbles;

2 payer – bright-yellow clay shale with the mixture of shingle-pebbles of semi-solid consistency (with no more than 10% in volume);

3 layer – shingles, with thoroughly processed pebbles from deposit rocks, with 30% mixture of boulders and sandy loam/clay shale fillings;

4 layer – bright gray limestone, slightly cracked, depleted, layered, solid;

5 layer – tufa, layered, of medium strength and coarse grain.

The line route crosses the following rivers: Tskaltubostskali, Gubistskali, Tskhenistskali, Abashistskali, Tekhuri and Tsivi.

The relief of the route location at the crossings of rivers Tskhenistskali, Abashistskali, Tekhuri does not allow crossing these rivers with one span. Therefore, the rehabilitation-reconstruction of special foundations No. 86, 87, 88, 118, 119, 136 and 137 in the grove of these rivers is planned to be carried out under the rehabilitation project.

2.1.5 Hydrogeology

The project development area. Syncline structure, vertical succession of ancient and modern sediments, alternation of water bearing and impermeable strata favored the formation and accumulation of pressure waters therein. Fissured and cavernous character of water bearing layers in recharge area causes infiltration of atmospheric water and formation of strong water bearing horizons and complexes. The tectonic structure of basin is supporting water accumulation and migration processes.

Water bearing horizons and complexes available within the limits of the study area are:

- water bearing horizon of modern alluvial grove and riverbed formations;
- water bearing horizon of the Black Sea coastal modern marine and alluvial sediments;
- water bearing horizon of modern morass formations.

Water bearing horizon of modern alluvial formations (alQ1V) – is a narrow, 1-2.5 m wide strip along river Rioni and other surface water bodies, except drainage channels. Lithology of water bearing gorge and riverbed sediments are presented by sands, clay, and seldom boulders. Thickness is 10-15 m. Properties of horizon depend on granulometric composition of rocks and can be indicated by the specific flow of groundwater: pebble-boulders (5-10 l/sec); sands (1-10 l/sec) and sandstones (1 l/sec). The quality of groundwater is typical, TDS (total dissolved solids) is low (0.3-0.5 g/l); by chemical composition water belongs to hydrocarbonate-calcium, calcium-magnesium type. Total hardness is 5-15 mg/eq, and temperature is 14-18C.

Aquifer is in direct hydraulic connection with lower water bearing horizons, mainly with Quaternary alluvial marine water bearing complexes. Recharging is accomplished via infiltration of atmospheric water; precipitations, snow melting, infiltration etc. Groundwater regime is tightly connected with alteration of riverbed level. The higher is the water level - the higher is the groundwater level and vice versa. The groundwater quality in terms of microbiology is poor, the horizon is not well protected, and usually, the moderate pollution of water is observed.

The water bearing complex of the coastal modern marine and alluvial sediments (amQ1V) - Aquifer runs along the coastal strip. The zone is composed of dunes. Infiltration velocity (leg) of aquifer is 50 m/day in sand and in sandy-loam formations the figure is lower. Specific flows are around 0.05-0.1 l/sec. Within the limits of sandy dunes fresh water lenses are met. In conditions of heavy rainfalls the lenses are expanding, in dry weather - shrinking. The TDS increases, water becomes chloride-sodium type. The mentioned horizon is characterized by hydro chemical zoning. The deeper is extraction level, the higher is chloride content i.e., TDS increases.

In conditions of intense exploitation the salinity and TDS of the fresh water lenses increases. The reason of this phenomenon is inflow of chloride-sodium waters from beneath. Underground water table is at 1-3 m below the surface.

Recharge is accomplished mainly from atmospheric water infiltration. Discharge takes place both into the sea and in the lower direction. Drinking properties are good, however, because of the poor natural protection of the water body water is less safe microbiologically.

Water bearing horizon of modern morass formations (BQ1V) - The aquifer is widely spread in the limits of Kolkheti lowland. Lithologically it is composed of complexes: sandstones, clayey, clays and peats. Sequence of the rocks alters. Lenses are common for the mentioned horizon. The groundwater quantities in different formations differ, they are hydraulically connected and form united aquifer. The aquifer is 5-30m, seldom more than 50m thick. Capacity increases from the east and south east to west, north-west direction.

Underground waters are bound with lenses formed in the sand strata. The lenses are located at different depths and are under hydraulic pressure.

Filtration coefficient varies from 0.05 to 1-3 m/daily. TDS varies in the range 0.3-0.7 g/l, specific flow is 0.1-1.0 l/sec, total hardness is 1.7-3 mg/eq, and the type is carbonaceous. According to chemical composition waters are hydrocarbonate-calcium-sodium type, the taste and odor is unpleasant. Recharge is based on atmosphere precipitations, surface water and inflow of pressure

water. The water is usually high in organic matter, probably result of the wetland and marshes in vicinity, because of this the odor and taste usually are unpleasant.

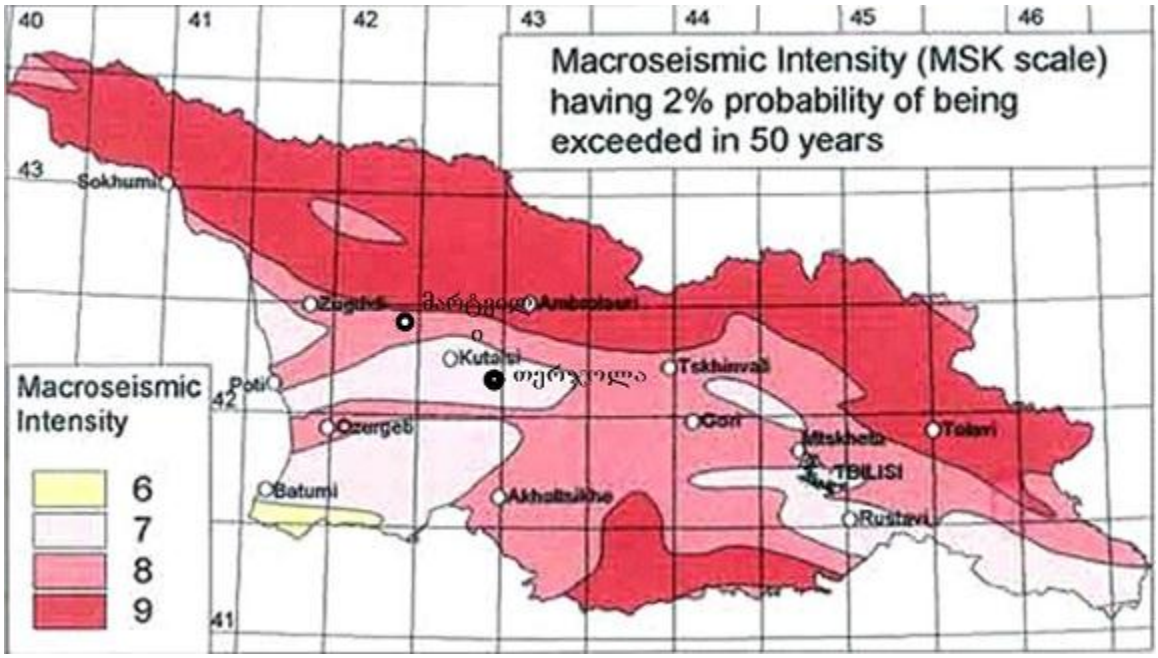
In general, it can be concluded, that practically whole affected environment is rich of groundwater. The groundwater chemistry varies from the sea towards the west direction. The groundwater is shallow, contains three water bearing layers. All of them are badly protected and prone to pollution. The water bearing horizons are without artesian pressure, so they can be easily polluted.

2.1.6 Seismic Conditions

The project site is located in West Georgia. The territory of which is formed on the bases of accumulation processes with no erosive forms. The soils composing the territory according to their seismicity refer to the III rd group.

Based on the existing statistic data high magnitude earthquakes were recorded during last 30 years. There are also evidences, that the earthquake activity was high in historical periods as well.

According to the revised seismic division scheme of the territory of Georgia the survey site belongs to 8 mark seismic activity zone (Decree N1-1/2284 of October 7 of 2009 of the Minister of Economic Development, Tbilisi, on approval of Construction Norms and Rules – "Seismic Resistant Construction" (pn 01.01-09).



Below are given characteristics of maximal horizontal acceleration of seismic waves within the survey site and in the inhabited localities of its neighborhood:

1. City of Tskhaltubo– 0,15 m/sec^2
2. City of Khoni – 0,14 m/sec^2

3. City of Senaki– 0.16 m/sec^2

2.1.7 Air and Water Quality

In general ambient air quality in the project area depends on exact locations, distance from the industrial facilities villages etc. In most part of the corridor, the Transmission Line runs through the rural areas, farms grazing land etc. The proposed TL route is placed in the corridor, which was specifically left for linear infrastructure such as roads, railway, pipelines, power lines etc. So this created the situation, when baseline conditions of ambient air depend on operation of motioned structures. It should be considered, that there are no other developments like residential or farming areas within the corridor, and thus there are no permanent receptors.

The reference documents used for evaluation of results were following:

- Sanitary rules and norms - Sanbook/2.1.6./000-00 "Hygienic norms for air protection in populated areas"
- Hygiene norms HN/2.1.6./002-01-"Allowed concentrations of the air pollutants in populated areas"

2.1.8 Surface water quality

While observing proposed corridor and its surroundings during the field surveys under present EA study, water samples will be collected for the analysis from areas of probable river crossings. The samples will be tested by specialized laboratory for the main parameters. Specific test will be conducted to check the level of surface river pollution by hydrocarbons.

2.1.9 Soils

Within the area there are soil formations of three types:

- Grey soils;
- Yellow grey soils;
- Humus grey soils.

Grey soils represent one of the most widespread soil types in the Caucasus. Their formation in connected with the climatological conditions when precipitations prevail the expulsion and create a special soil and landscape belt. The structure of the grey soil changes. Podzolic grey and carbonate soils are formed. Pozdolic grey soils mainly appear on the intensively exhausted clay soils and clays. Their profiles are characterized with thin underlying formation followed by 3-5-cm humus horizon and 15-20-cm obviously faded podzolic horizon. The profiles end with alluvial-metamorphic hardened straw-colored and yellow or reddish-yellow horizon turning into the main rock. The humus content is low and the reaction is the acid one.

Yellow grey soils belong to the type of yellow soils. The soils as well as grey soils are spread in the surface zones of the Dzirula massif, where there is a residual type of soil. They are mainly spread on terrace formations and piedmont plains. The humus soil is represented by a granular soil layer (19-15 cm). Deeper there is an alluvial-metamorhic horizon that gradually turns into the main soil-forming rock. The content of the humus horizon in this type of soil makes 6-10%, and the level of acids prevails higher than the level of base materials.

Humus-calcareous soils are developed under the growth, main calcareous rocks. These are limestones, dolomites and their fission products. Their area is characterized with damp climatic conditions. The high carbonate contents of the soil-former contributes to the formation of calcareous and humus-calcareous floor profile. Their upper part has dark grey color and fades lower. Then it goes into the base rock. In the upper part of the profile the reaction is neutral. As for the lower part, the reaction is an alkaline one. The lower part of the profile is enriched with carbonate. The concentration of humus in the upper part of the horizon is 6-10%. The soil types are mainly spread in the limestone rock zones characteristic for the Chalk era rocks along the Caucasus.

2.1.10 Flora

This section describes flora within a proposed corridor that extends from the central line within about one kilometer on either side, with particular attention to the area within 100 meters of the route centerline, to allow sensitive communities and habitats to be identified. The data in this section is based on literature review and field surveys. It should be noted that published materials concerning the immediate corridor were scarce or nonexistent in some cases, so several brief field visits were made to ensure full coverage of the route. The TL route is placed within the boundaries of this corridor, where the vegetation differs from vegetation in vicinity zones and is presented as secondary vegetation modified after the strong anthropogenic influence from existing infrastructure, as well as drying activities and construction of the drainage system.

The transmission line corridor goes through areas with no significant vegetation where the majority of the territory is covered by agricultural lands. Therefore, natural vegetation of the target territory has fragmented distribution and the plant community is mainly comprised of introduced species. This was identified during the screening process for different alternatives. Some differences were observed for south and north alternatives, where the proposed project area is close to the edges of lowland and close to the mountain outcrops, or enters protected areas.

The infrastructure corridor and more than 80% of its adjacent territories are agricultural lands, mainly represented by the pasturelands and cultivated plots. Forest fragments remaining on the route are mainly of secondary nature and are composed of local and the agglomerative stands of the advent timber vegetation.

The main representative formations present along the target routes of all alternatives are following:

- Forest type vegetation;
- Meadows vegetation;
- Wetland vegetation
- Water vegetation

2.1.11 Fauna

Approach and Methodology:
In order to evaluate the baseline information on fauna the existing information review was carried out followed by the field visits to the proposed corridor.

The information regarding fauna was carried out based on the information published in books, scientific articles periodic publications etc. Based on the analysis of desk study outcomes the main characteristics of fauna were identified. The lists of the species were prepared and the field trips undertaken to identify differences or contradictions between reference materials and actual situation on site.

The field trips were conducted during May 2011. The main field trip was planned as walk-through the proposed corridor and its alternatives. The visit period was selected due to its importance for evaluation of fauna. During the field trip the following assessment has been carried out in order to identify issues, sensitive ecosystems and particular kinds of species requiring protection:

- Common zoological description of the project area (corridor).
- The list of species having habitat within the project corridor and protected by the law.
- Identification of territories, important for protection of biological species of the fauna.
- Identification of rare species that may be affected by the project development.

The results of conducted studies are given in following subsections:

2.1.12 General Description West Georgia Infrastructure Corridor

According to the zoogeographical significance, this section is totally placed over the Caucasian Circulemboric sub-region. This territory is called West Eurasian district. The area is very important for the wildlife biodiversity, since it is located on transit routes of the migratory birds. The area is located on the Euro-African and Asian-African migratory routes). Every year 120 species of the migratory birds stay during the winter period at KNP area. The number of individuals staying during the winter period varies by years. The estimated number of individuals staying during the winter within the fresh water lakes and wetlands adjacent to the Black Sea coast varies between 10 and 100 thousand.

Fauna within the TL Corridor

The fauna along the route is rather poor because of settlements and the historically intensive development which is still progressing for agricultural needs. The vicinity of the settlements and the River Tskhenistskhali caused limitation of free movement of the terrestrial vertebrates from the KNP towards the subject territory, predetermining low diversity of the fauna along the proposed route. From zoo-geographic viewpoint, this district is fully located in the circumboreal sub-region of Caucasian zone, which is also called as western Eurasian region.

The GRL (Georgia Red List) lists bird species, White-tailed Eagle (*Haliaeetus albicilla*) and possibly Bukhritsa (*Barn Owl*), in the project territory but the presence of such species is not confirmed. Also within the corridor the Greater Spotted *Eagle (Aquila clanga)* and Saker Falcon *(Falco cherrug)* may be encountered, but the chance is very low, because the mentioned species prefer less or not populated territories, which are plenty in vicinity.

The territory can be important for some species of bats; they are using some trees and artificial construction in the villages.

Other species of wildlife can be encountered in small quantities within the construction corridor. Those species have some hunting value and the protection of those is ensured by the hunting rules.

The chance to encounter the above species in the construction corridor is very low. However, potential impacts of construction and operation and the need for mitigation measures will be determined in the EA.

The important species that may be encountered in vicinity of Rioni River and channels is otter *(Lutra lutra)* which usually inhabits those areas. Potential impacts to this species will be discussed further in the EA.

Socio-Economic and Cultural Environment

The socio-economic situation, demography, and cultural and traditional beliefs are rather similar in the Western Georgia, with the exception of the urbanized areas around Kutaisi port. Moving along the proposed TL route, the villages are comprised of homesteads scattered over approximately 3-5 hectares. The typical home in West Georgia region is a two-storied stone/timber building established before 1990 of app. 200 m2. A second, small building is attached for cooking and baking. There is no functioning sewage system in the villages and people use latrines. The water supply system established during Soviet times has deteriorated and is now under rehabilitation sponsored by international donors. The population receives drinking water from springs and wells. Houses are heated with firewood and LPG gas is used for cooking. Not being connected to the gas grid, local inhabitants have to travel to Poti or Senaki to refill their gas containers. The electricity supply is satisfactory, but metering is done not for individual households but for 10 families together, which often creates conflicts. Some household waste is being collected thanks to a private initiative. However, this solution is not sufficient. Therefore, many inhabitants burn the waste or dump it into the rivers or channels and along the railway, line. The main source of information and entertainment is TV.

Agriculture is practiced mainly for subsistence and to complement family income. After the land reforms, each of the villager received 0.8 ha land, which usually consists of scattered plots. Corn is being grown as animal feed and as staple. Citrus orchards and tea plantations are not feasible any more since the Russian and other traditional markets have been lost. Instead, hazelnut plantations have become more promising investments as market conditions are better and the crop does not require many inputs. However, competition with subsidized Turkish nut production is tough and keeps prices low. Besides that, all houses keep kitchen gardens and dairy cows, mainly for own consumption, but some surplus is being sold at road side stands and on markets in Khoni and Senaki, More intensive animal husbandry is hampered by the lack of a proper (state financed) veterinary service. Despite its low return today, many inhabitants of west Georgia regard agriculture as a key to future growth, more so than other sectors of the local economy. Some employment and profits are highly expected from the new Poti FIZ (Free industrial Zone). About half of the population lives of agriculture alone. The other half is mainly seasonally employed, in particular during summer months in the tourism or construction sector, or sells hand made goods to passing tourists.

Cultural Heritage

Analysis of paleographical, archeological and historical materials shows that the current geomorphologic structure of the area was formed 4-6 thousand years ago. It includes the surface topography of the underwater slope of the zone, location of the zone and morphological appearance of the 150-250 meters wide and 1.5-2.0 meters high coastal dune running along the continuous strip. It is ascertained that the morpho-dynamic regime of the development of the coastal zone between mouths of the rivers Enguri and Rioni was stable during the last 4-6 thousand years until the forties of the 20th century and consequently the mentioned section of the area has not experienced any considerable geomorphologic changes during this period [Vakhania, 1973].

Shkepi Castle is near the proposed transmission line. The EA will discuss potential environmental impacts to this historical site.

Imereti Cave Protected Territory was established in 2007. It is located in Tskhaltubo, Tkhibuli, Terjola and Khoni Ryons. This area consists of Sataplia State protected Territory and incorporates series of caves located within this area. Construction of the TL line and substations will have no impact on the protected territory due to its distance. No Protected Territories are located in the vicinity of the transmission line. An area of 7km on both sides of the transmission line was considered when identifying whether the transmission line was in the vicinity of Protected Territories.

2.2 Overview of the National Environmental Legislation

The Environmental Impact Permit is issued by the Ministry of Environment (MoE) under a procedure involving a) environmental impact assessment, b) ecological examination and c) public participation. The Law of Georgia on Environmental Impact Permit (dated December 14, 2007) mainly determines the detailed procedures.

The Law on Environmental Impact Permit contains the list of activities subject to EA and the related procedures and regulates the issuance of environmental impact permits. According to this list the projects of the transmission lines/substations and major reconstruction of the existing infrastructure is subject to Environmental Expertise and Environmental Impact Permit. According to the Law a developer, seeking a permit, prepares the EA, organizes public discussion in 50 (to 60) days after disclosure, considers comments received from public, takes other measures as appropriate and, afterwards, applies to the MoE for a permit. The MoE carries out the ecological examination of the project (for which the EA hearing has already been conducted) and issues a permit within a timeframe of 20 days. The conclusions of the ecological examination (expertise) are the prerequisites to the Environmental Impact Permit and the Construction Permit. In this context, in line with conclusions of the ecological examination, the approvals received from the other Ministries/Departments relevant to the Project are also prerequisite for issuing the environmental permit.

With regard to public consultation of EA the Law on Environmental Impact Permit establishes the details on the succession of procedures, i.e. EA coordination, timeframes for information disclosure and public discussion. The Law determines how the outcomes of public discussions shall be documented. It also specifies documents to be submitted for obtaining permits, and provides the details on the procedure of permit issuance and the role of the MoE and the developer in this process.

Apart of the above legislation directly related to the preparation of the EA and issuance of Environmental Permit, also developer or its consultant should follow other environmental laws, regulations and standards during the preparation of EIA. These laws and regulations are Law on Protected Areas, Law on Wildlife, Law on Minerals, Law on Environmental Protection Services, Law on Protection of Ambient Air, Law on Water, Forest Code, and others.

The overview of the national legislation in more details will be presented in the full-scale EA report.

2.3 Alternatives Including the Proposed Actions

The following are the alternatives that will be evaluated in the EA. Additional alternatives may be identified during EA preparation. As required by 22 CFR 216.6(c)((3), reasonable alternatives will be explored and evaluated in the EA, and the "No Action" alternative will be included in the EA discussion for comparison purposes. At the time the EA is prepared, the preferred alternative will be identified. Scoping meetings that were conducted for the scoping process did not identify any alternatives to the current route of the transmission line.

2.3.1 No Action (Alternative 1)

The "No Action" alternative will be considered in detail in the EA. In the "No Action" alternative, the power transmission line and sub-stations will not be re-constructed. The infrastructure will remain in its present condition (and will probably continue to deteriorate since there will be no maintenance or management). In the present condition, the line does not give any chances to transmit required quantities of electricity to Western Part of Georgia. Without this source of power, development of Anaklia touristic zone will be constrained and the GoG will not be able to develop Free Industrial Zone and provide electricity to local population. Overall economic development of Western Georgia will be constrained by the "No Action" alternative.

2.3.2 Alternative 2: Use the Existing RoW

The total length of Tskhaltubo- Senaki power transmission line is 58.1 km and runs through four regions of Georgia (Senaki, Abasha, Khoni and Tskhaltubo). The route of the transmission line is mainly located in the flat area, however the last (end) section (near the city of Senaki) of the TL line is under the complex topographic conditions running through the mountains adjustment to City Senaki.

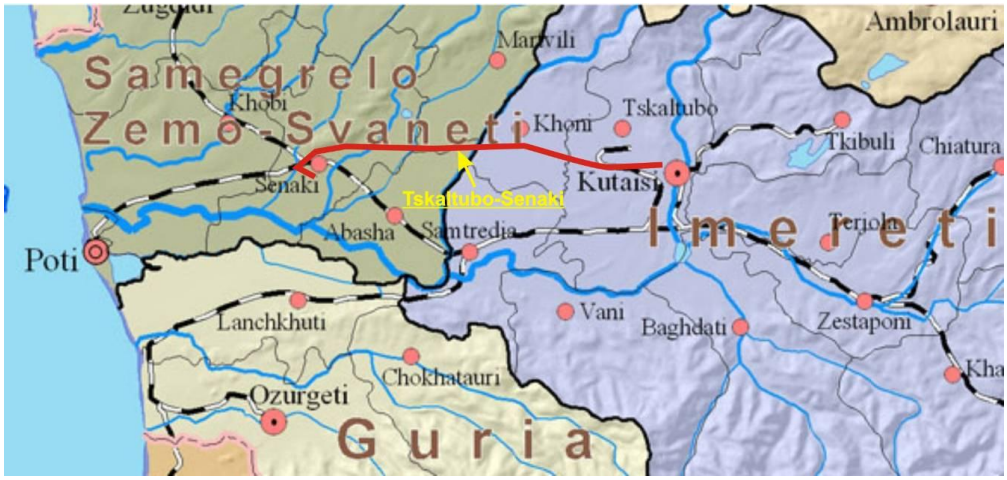
The line crosses the main railway (Senaki-Zugdidi and Kutaisi-Tskhaltubo) in two locations, river-beds – in eight locations (Tsivi – in two locations, Tekhuri, Abasha, Noghela, Tskhenistskali, Gubistskali and Tskaltubostskali), 110 kV PTL – in two locations and 35 kV PTL – in three

locations. Moreover, transmission line crosses low voltage (10kV and 0,4 kV) and communication lines. Tkhslatubo- Senaki transmission line also crosses highways in the following locations Senaki-Chkhorotsku, Senaki-Martvili, Abasha-Martvili, Samtredia-Khoni and Kutaisi-Tskaltubo.

The line was constructed in 1992, has been out of operation since 1994 and is almost robbed, with hardly any standard steel towers left. .

2.3.3 Alternative 3: Avoid Water Crossings

Background. The proposed line right of way crosses 7 big and small rivers (named Tsivi – in two locations, Tekhuri, Abasha, Noghela, Tskhenistskali, Gubistskali and Tskaltubostskali). These rivers run from the North to South. In the North are the Caucasus Mountains. The rivers empty into the Rioni River, which runs from the East to the West. Thus, to avoid crossing of these rivers the alternatives are to either (a) re-route the line up high into the mountains, or (b) move the line down to the Rioni River. See map.



The alternate routes have disadvantages and advantages.

(a) If the route is designed further north in order to avoid the river crossings it will require additional kilometers of the new green fields to be utilized for the tower footings. In addition the route will end in the ridges of High Caucasus Mountains. These additional towers to be constructed will cause more environmental impact on surroundings than the proposed routing.

(b) Another option to avoid river crossings is to move line down to the south to edge of the Rioni RiverAs in the above option the line will be longer with more towers and more environmental impact from the tower footings and their construction. Also, a line routing along the Rioni River (either north bank or south bank) will go through a major environmental wetlands area of the Kolkheti National Park.

Furthermore restrictions can be given to the construction companies:

- not to have river crossing d by equipment;
- require construction companies to install temporary bridges;
- conduct construction during winter when the river flow is slow and rivers can be redirected within their channels (stay away from the river banks and their flora and fauna);
- In addition they also can use helicopters to install towers and cabling in order to minimize environmental impact;

2.4 Significant Effects to be Analyzed in the Environmental Assessment

The project received a Positive Determination because it was determined that the following impacts may be significant and further evaluation in an EA was needed:

- Conflicts between the power line and critical wildlife habitat
- Land tenure/right of way
- Land use
- Community concerns
- Historical sites
- Security
- Operation and Maintenance

Based on the concerns in the IEE, the fieldwork undertaken for scoping, and on desk studies, and using the Scoping Team identified the following environmental concerns, which could potentially be significant:

- Effects on aquatic resources: river crossings that could affect wildlife (the otter) and other aquatic resources; increased erosion; interference with local drainage patterns; contamination of water from spills (fuel, oil, concrete) during construction of the crossing over Rivers; pollution of rivers with heavy metals from waste disposal and maintenance operations. (Construction/O & M phases)

- Effects on terrestrial resources: temporary loss of habitats and flora and potential impact to ecologically sensitive sites due to the new route construction (includes temporary impact on tree species); bird and bat mortality issues relevant to transmission lines (hazard of electrical shock and strike to birds or other wildlife, disruption of migration corridors). (Construction/O & M phases)

- Effects on cultural resources: Possibility of finding resources during excavation works. (Construction phase)

- Land Acquisition/Tenure: For the proposed route, works actually follow in close parallel with the existing RoW therefore majority of the lands under the ownership of GSE, however there are encroachments that have to be compensated and GSE has to take care of this issues by getting

compensation or servitude agreements with owners. Depending on the route, various compensation scenarios are available.

- Electromagnet radiation, disruption of radio, television and cell phone transmission (O & M phase)

One of the of the above concerns, the scoping meeting identified only electromagnetic fields as a community concern.

The scope of the anticipated impacts is based on the reference information and findings of the field visits undertaken during the field visit in May 2011 within the frame of existing design analyses.

The EA will address the above noted potential significant impacts during the construction and operation and maintenance (O & M) phases. Potential construction phase impacts will be related to site clearance and establishment of access and river crossings. While construction will be in place, there will be movement of heavy machinery and potential pollution by fuels, oil etc. In case of the access road or temporary allocation clearance activities will be required. The clearance will generate topsoil, which has to be stored properly, handled and reused during the reinstatement if required. In the same period, impacts are expected from the refueling activities, damaged equipment operation etc.

During the installation of electricity poles, the welding might be required as well as installation and assembling of the poles. All these issues will generate different types of waste, which can affect the environment.

The EA will also evaluate the potential significant impacts during the O & M phase. These will involve potential for bird strikes, impacts related to the frequent movement of the maintenance crews along the RoW.

More details will be identified and described in the EA document. This will be followed by mitigation measures in order to minimize/avoid direct and indirect impacts.

- increased access and its associated effects (from the transmission line itself or construction and maintenance roads),
- potential localized human health problems from stray voltage, electric and magnetic fields, fallen lines, fire/explosion, or what?
- Aviation traffic
- Occupational safety and health hazard from construction and maintenance
- Herbicide releases and hazardous waste from excess herbicide and containers
- any potential for invasive plant species on ROW,
- habitat fragmentation or disturbance, loss of forest area;

- waste management, discharges and emissions, land degradation and damage to vegetation, disturbance of wildlife during line construction;
- disturbance / degradation / removal of physical cultural assets
- noise, dust, emissions and increased traffic during construction period
- *Waste and hazardous materials, e.g.,* insulating oils, fuels and lubricants used during construction, construction waste
- use of herbicides for ROW maintenance
- Impacts from creation of new temporary access roads (if/when necessary), as well as grading and drainage arrangements for existing roads, construction sites and staging areas;
- Temporary difficulties in moving cattle across the |Row
- Emissions from construction vehicles and other equipment;
- Significant short-term noise impacts with the use of the heavy machinery and various types of construction equipment;
- Longer term impact of discarded waste if not managed properly
- Negative impacts on local infrastructure (use of access road, sitting);;
- Positive short-term impact on employment during the course of the construction (unskilled labor);

3. Identification and Elimination of Issues that are not Significant

Several issues identified as part of the Scoping Statement assignment were eliminated from further consideration in the EA process because they were determined to be non-significant, they are being addressed already or because actions have been proposed to mitigate them. Non-Significant issues should not be assumed to be unimportant, but rather less important relative to others and not cost-effective to mitigate relative to the importance of the impacts they generate. Non-Significant Issues are identified and summarized below:

Air Quality and Emissions & Noise Pollution
Emissions from vehicles and equipment are estimated to be very low. Their further study with respect to the approximate emission discharge calculations shall be eliminated from the EA report. Noise from heavy machinery is a temporary, construction phase concern and one that is considered unavoidable.

Water Treatment and discharge
Water will be used in very low amounts and there will be almost no discharge of the water into natural sources. Therefore no Maximum Permissible Discharge Document for calculation of water discharges shall be considered in further EA study.

Geological Setting

The main outcome of the initial assessment of the geological settings is that there are no areas prone to severe geological hazards or restriction zones (e.g. protected areas or extremely sensitive environmental receptors) – that may prohibit project implementation.

Visual Impact
Short-term visual impacts from the presence of RoW and construction personnel. This impact is unavoidable and minor. Permanent residual visual impact of the transmission line and towers. No community members commented on this as a concern. (Construction phase)

Social Issues
- Short-term and localized social impacts due to safety risks to community members
- Introduction of short-term labor force into the community, including possible health risks
- Positive short-term impact on employment during the course of the construction (unskilled labor)

Impacts from workers (up to 100-150) and staging areas for the construction period are anticipated. Kutaisi, Abasha, Senaki and/or nearby villages could be used for housing and catering the contractor's workforce. These are not considered to be significant impacts because there is already a transient work force in the area, and there have been no significant health risks; and as part of their contract, the construction company will be required to provide health related information to their workers.

The justifications presented above provide the basis for eliminating these issues from further study. The justifications show that they are not significant and/or that the design already takes into consideration the potential environmental impacts. Therefore, based on these justifications, the following are the potential significant impacts to be evaluated in the EA:

Terrestrial habitat alteration:

- vegetation damage, natural habitat (and critical natural habitat) loss; along the ROW and access roads and around any substation sites (during construction and during operation);
- any potential for invasive plant species on ROW,
- habitat fragmentation or disturbance, loss of forest area;
- interference with (migratory) bird and bat flight patterns
- waste management, discharges and emissions, land degradation and damage to vegetation, disturbance of wildlife during line construction;

Aquatic habitat alteration:

- runoff and sedimentation from grading for access roads, tower pads, and substation facilities, alteration of hydrological patterns due to maintenance roads
- construction activities near / in aquatic ecosystems at water crossings of ROW
- discharge of liquid waste into aquatic ecosystems, accidental spills

Impacts on socio-economic issues and cultural property:

- disturbance / degradation / removal of physical cultural assets

- health effects and annoyance from electromagnetic radiation and ambient noise
- Interference of power line operation with communication systems in the area (telephone, radio, television, etc.)

Waste and hazardous materials

- insulating oils
- fuels and lubricants used during construction time
- construction site waste management
- use of herbicides for ROW maintenance

Cumulative impacts occur when the addition of a single impacts from a number of individual events result in a compounding effect. Although each impact may not be significant alone, cumulatively, these impacts may be significant if they occur close together in terms of location and time, resulting in incremental, widespread, often slow change and environmental conditions.

The combination of construction effects such as dust, noise, visual impact may cause disruption to those living and working close to the proposed transmission line route. No other significant construction projects (like road, railway, and pipeline) are expected nearby within the Tskhaltubo-Senaki infrastructure corridor.

Cumulative impacts, such as the cumulative effects of noise, dust, and visual impacts, will be discussed in the EA.

3.1 Impacts Identification/Screening and Significance Determination

The EA Team has been chosen based on the potential significant impacts identified in this Scoping Statement. The experts will evaluate potential significant impacts of each alternative, and they will identify mitigation measures. Each expert will focus on the significant impacts in their expertise as identified in Section 2. Paragraph 2.4 significant impacts and No significant impacts in section 3 of the Scoping Statement. The rational, and the documented approach, for determining what is and what is not significant are presented in Chapters 2 and 3. Based on a discussion of environmental consequences, they will determine the need for mitigation and whether mitigation is practicable. Where mitigation is not possible or if it is inadequate to minimize concerns, the team will note this as unavoidable consequences.

The team will provide greater detail on the three alternatives and the environmental consequences of each. This includes characteristics of the proposed development (e.g scale, use of natural resources, quantities of pollution and waste generated); sensitivity of the areas to be affected by the development; and characteristics and significance of the potential effects (magnitude and duration).

Data Sources

At the initial stage, the information available on specific section is collected from published sources including books, periodic publications scientific journals, internet etc. Due to the different projects already existing in this area sufficient data is in place within the country. The following literature was used during drafting this scoping report: (A. Abuladze 1994, " Wild Birds"; M. Bakradze 1992,

Catalog of Amphibians, A.Bukhnikashvili, A Kandaurov Mammals in Georgia 1998). This will also be used for the EA. Fieldwork will involve visits to the two alternative routes.

Schedules

Preparation of the Environmental Assessment

After approval of the Scoping Statement Tetra Tech will start development of the Environmental Assessment. In order to develop Environmental Assessment the environmental baseline study has already been conducted by expert teams. Currently Tetra Tech is in the process of analyzing this data and geological survey data provided by designers.

The EA Team is ready to begin work as soon as the Scoping Statement has been approved.

Planning and Decision-making Schedule

EA will be developed in July and submitted to BEO for approval. Tetra Tech expects EA preparation to take about four weeks.

Week 1: Analyze data from baseline studies; analyze information from reports and books and data gathered from other projects in the area. Meet with USAID, as needed throughout the four weeks.
Week 1 & 2: Fieldwork at the two alternative sites; meet with communities and NGOs.
Week 3: Begin write up of the EA, continue fieldwork as needed.
Week 4: Finalize the EA, meet with USAID to de-brief on findings.

In parallel Teta Tech will start procedures relevant to Georgian legislation for disclosure and submission to MoE for Ecological Examination and issuance July-August 2011.Public Consultation meeting on EA document will be held in August 2011.

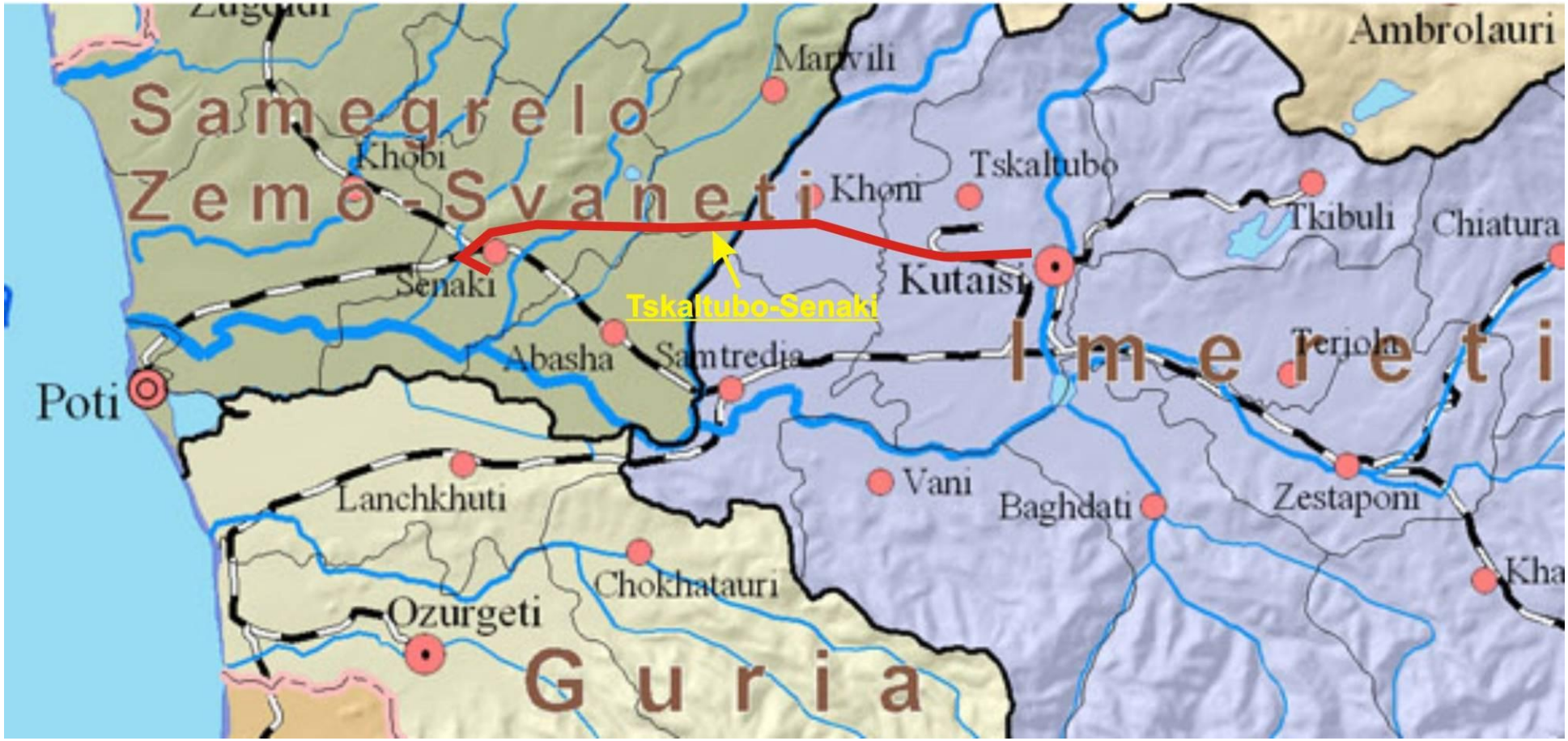
4. ENVIRONMENTAL ASSESSMENT FORMAT

TABLE OF CONTENTS

5. ENVIRONMENTAL ASSESSMENT TEAM COMPOSITION

Name	Proposed Position	Qualifications	Years Experience
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			

Annex A. MAP


Ambrolauri
Samegrelo
Zemo-Svaneti
Khobi
Khoni
Tskaltubo
Tkibuli
Chiatura
Senaki
Tskaltubo-Senaki
Kutaisi
Imereti
Abasha
Samtredia
Terjola
Poti
Lanchkhuti
Vani
Baghdati
Zestaponi
Chokhatauri
Ozurgeti
Guria

Annex B. Project Site Photographs

River Tsivi Crossing

River Tsivi Crossing

Area adjacent to the Senaki substation

Degrader Tea Plantation

Annex C: Minutes of Scoping Meetings.

Tskhaltubo Senaki Transmission Line and Two Substations Tskhaltubo and Menji Rehabilitation Project

May 23, 2011, Minutes of Public Consultation Meeting on Environmental Scoping Statement

Minutes were prepared by LLC Gergili and Tetratech

Public Consultation;
May 23, 2011; 2p.m

General Description

Short introduction: Tetratech in coordination with GSE and LLC Gergili has conducted Public Consultation rehabilitation/reconstruction of the transmission lines Tskhaltubo –Senaki and two substations Menji and Tskhaltubo. Public consultations where held in Tskhaltubo, Khoni and Senaki. Prior to public consultation the information on Public Consultation meetings was disseminated on websites (www.gergili.ge; www.gse.gov.ge) and hard copies of the documents were delivered to the region.

Participants of the meetings were: Tetratech, LLC Gergili, Municipality Gamgebeli, Head of Sakrebulo, local nongovernmental organizations, representatives of mass media and local population.
Notes:

1. Announcement about Public Consultation Meeting was published on May 17, 2011.
2. The number of attendants exceeded more than 30.

The presentation was made by: Sophie Berishvili Tetratech In the preamble to presentation Ms. Berishvili spoke about the importance of Rehabilitation Project reviewed the environmental issues, social issues, alternatives, scope of EA etc. Discussed about the details of the project

The presentation continued in the mode of questions and answers. Sophie Berishvili (Tetratech) and Gergili gave responses to questions.

Tskhaltubo:

Question: What is the width of alignment?

Answer: According to the information of GSE, the alignment is 30 meters.
Question: how will be standards after reconstruction of the line more precisely about

electromagnetic impact?
Answer: GSE will operate the line in accordance of the standards and no major activities will be done under the electricity lines.
Question: You already mentioned but can you repeat what is the main purpose for rehabilitation/ reconstruction of the line?
Answer: Main purpose to provide constant electricity supply to west Georgia and Poti Industrial Zone.
Question: The employment of local population is one of the most critical problems in the region. Whom shall we apply to regarding employment matters?
Answer: All the inquiries related to employment shall be addressed to the construction company.

Khoni May 23, 2011;

Question: When does this Project starts?

Answer: Design work of the project has already been started. Cosntruction is estimated in Fall 2011.

Question: Who will operate the line?

Answer: Line will be operated in by GSE

Question: What about land parcels who will comensate it?
Answer: GSE is under the study of the land parcell issues along th eroute and will approach peolpe as sson as it is finished.

Senaki 5p.m
Question: What is the value of the project?

Answer: Cuurently we are in the design stage and cost of the project will be revieled at the later stage.

Question: What is the main purpose for rehabilitation/ reconstruction of the line?
Answer: Main purpose to provide constant electricity supply to west Georgia and Poti Industrial Zone.
Question: What about cost of the electricity will that be reduced?
Answer: Well I think we cannot answer this question and hope the right entity that might know about issue is Georgian National Electricity Regulatory Agency.
Conclusion: The meeting with population passed in a friendly atmosphere. The most urgent request of the society was the employment of local population in construction works.

Photoes of the prsentation:

Tskhaltubo 11 a.m

Khoni 2p.m

Senaki 5p.m

Announcement

Public Consultation of the Environmental Scoping Document for Rehabilitation of Senaki Transmission Lines and Reconstruction of Substations Menji & Tskhaltubo

Date for Conducting Public Consultation Meetings May 23, 2011

Georgian Power and Gas Infrastructure Project (PGIP), in coordination with Georgian State Electrosystem (GSE) and Environmental Consultant Company LLC "Gergili", is pleased to disclose for public consultation the environmental scoping document for **Rehabilitation of Senaki 1,2 Transmission Lines and Reconstruction of Substations Menji and Tskhaltubo.**

Consultation meetings will be held on May 23, 2011, at Tsakhaltubo District Municipality at **11:00a.m**; Khoni District Municipality at **2:00p.m** and Senaki District Municipality at **5:00p.m.**

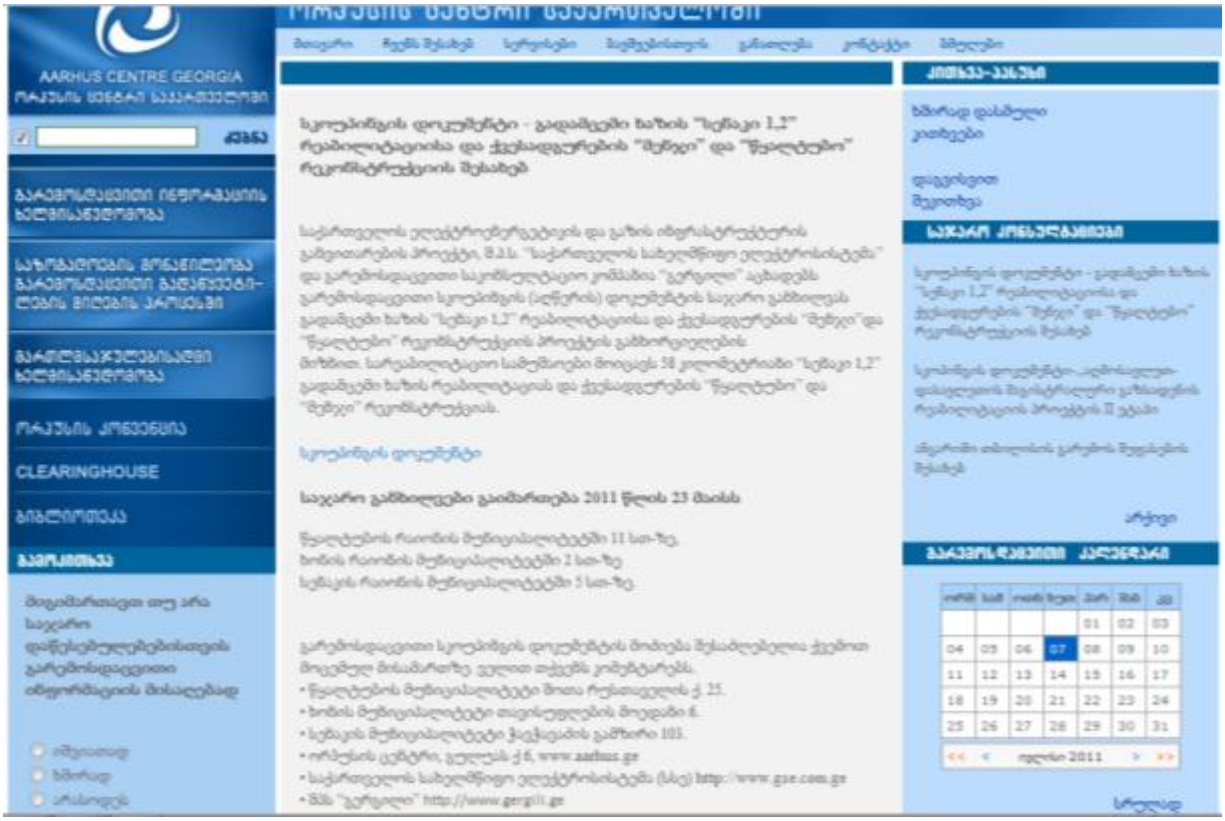
The rehabilitation works include rehabilitation of 220kV Transmission Lines Senaki 1,2 with the length of 58km and reconstruction of Tskhaltubo and Menji Substations.

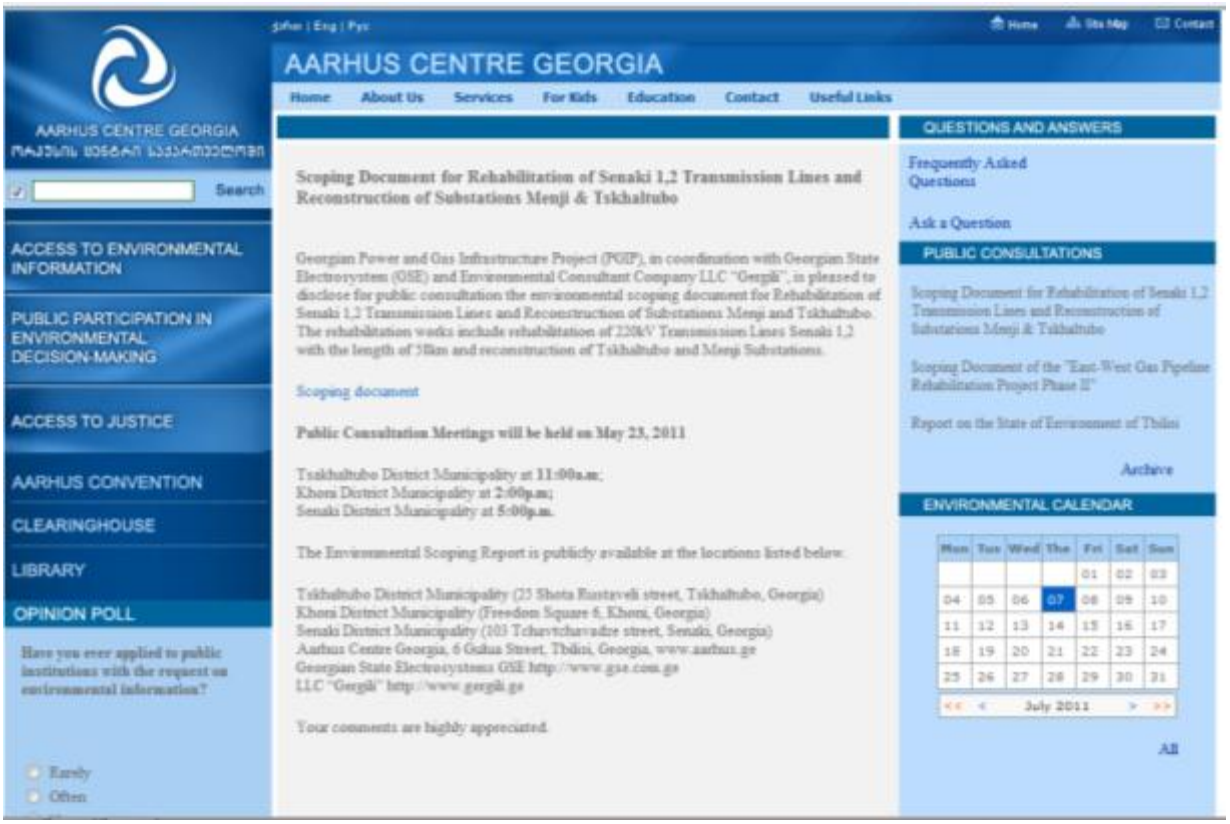
The Environmental Scoping Report is publicly available at the locations listed below.

Your comments are highly appreciated.

- Tskhaltubo District Municipality (25 Shota Rustaveli street, Tskhaltubo, Georgia)
- Khoni District Municipality (Freedom Square 6, Khoni, Georgia)
- Senaki District Municipality (103 Tchavtchavadze street, Senaki, Georgia)
- Aarhus Centre Georgia, 6 Gulua Street, Tbilisi, Georgia, www.aarhus.ge
- Georgian State Electrosystems GSE http://www.gse.com.ge
- LLC "Gergili" http://www.gergili.ge

Annex D. Public Disclosure Announcement





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